

REMARKS

Claims 1-24 and 26-42 are pending in the present application. The Examiner rejects all of the pending claims. Applicants herein present new claim 43 which expressly recites that the filler is directly applied between the two layers of fiber material. No issue of new matter arises by way of the amendment as it merely describes a completely inherent feature of the embodiments exemplified. Upon entry of the instant Amendment and Response, claims 1-24 and 26-43 will be pending.

Objection to the Specification

The Examiner objects to the specification because it is allegedly unclear what “paste” refers to and has been interpreted to refer to “pulp.” The Examiner was not persuaded by Applicants’ last explanations.

As regards the terms “paste”, “fibre” and “pulp,” Applicants clarify for the record that “paste” is the most general term, since it refers to a soft and flexible mass formed by a solid substance which has been ground or milled, pulverised and intimately mixed with some liquid. However, the meaning of “paste” can also involve an indication on the nature of the product. A paste can also be the mass resulting from macerating and grounding a raw material such as fabric, wood and the like for manufacturing paper. Applicants respectfully submit that the term is therefore properly used in the context of the present invention. It is also correct to interpret in this context the term “paste” as “fiber” or “pulp”, since “a fiber” is a filament forming part of the composition of organic tissues (may well be wood or fabric as raw materials for the manufacturing of paper or card-board), and “pulp” means among others the marrow of the woody plants.

Rejection under 35 U.S.C. 112, second paragraph

The Examiner objects to claims 1-24 and 26-42 under 35 U.S.C. 112, second paragraph as allegedly unclear for various grammatical reasons as follows:

1. Claims 4 and 5 are allegedly unclear because the basis for the distance is not recited;
2. Claims 19-20 are allegedly unclear because of “a return;”
3. Claims 36-37 are allegedly unclear because it is unclear what has been extracted; and
4. Claim 40 is allegedly unclear because it is unclear what “paste” means.

Regarding point (1) “distance”

Regarding claims 4 and 5, the distance of 1 to 70 cm, according to Figure 3, Applicants clarify that the distance measured from the centre of the nozzle to the web in a vertical line.

Regarding point (2) “a return”

Concerning claims 19 and 20 and the objection to the term “return,” Applicants clarify that the “return” is understood by one of ordinary skill in the art as a “return pipe.” Applicants herein amend claims 19 and 20 to include this clarification.

Regarding point (3) “what is extracted”

In order to further clarify the expression “dry extract” in claims 36 and 37, Applicants introduce the following amendment following the Examiner’s suggestion: “...of said filler weighed on a dry basis.”

Regarding point (4), “paste”

Regarding the objection on the terms “paste”, “fibre” and “pulp” Applicants clarify for the record that “paste” is the most general term, since it refers to a soft and flexible mass formed by a solid substance which has been ground or milled, pulverised and intimately mixed with some liquid. However, the meaning of “paste” can also involve an indication on the nature of the product. A paste can also be the mass resulting from macerating and grounding a raw material such as fabric, wood and the like for manufacturing paper. Applicants respectfully submit that the term is therefore properly used in the context of the present invention. It is also correct to interpret in this context the term “paste” as “fiber” or “pulp”, since “a fiber” is a filament

forming part of the composition of organic tissues (may well be wood or fabric as raw materials for the manufacturing of paper or card-board), and “pulp” means, among others, the marrow of the woody plants.

Rejection under 35 U.S.C. 102

The Examiner rejects claims 1-3, 6-8, 10-13, 17-18, 22-24, and 32-42 as allegedly anticipated by Coleman, U.S. Patent 4,008,121. The Examiner was not persuaded by our previous explanations. According to the Examiner, Coleman teaches that the preferred fillers are clay and/or titanium dioxide (*citing*, Column 1, lines 41-44). The latter is still part of the fillers and therefore, Coleman allegedly still anticipates the claims. Furthermore, the Examiner says that even if the titanium dioxide were deleted from the claim, the use of the other fillers from the Markush group would have been obvious since they are well known in the art. Allegedly, Coleman teaches that clays and titanium dioxide are the preferred fillers (*citing*, Column 1, lines 41-44).

Applicants submit that Coleman, U.S. Patent 4,008,121 teaches a method and device whereby the suspension is “forced through a horizontal slot so that it wets both upper and lower edges of the slot and is extruded generally horizontally from the slot to fall downwardly under gravity across an upright surface of a wall which terminates at a bottom blade edge located above the horizontally moving said ply surface whereby to establish a falling curtain of said suspension over said surface...” as specifically recite in, for instance, claim 1.

In the present invention, the filler is applied by spraying ***directly on the web surface***. Furthermore, the present invention is much more cost effective than the method described by Coleman, U.S. Patent 4,008,121. The device disclosed by Coleman, U.S. Patent 4,008,121 is more complex and leads thus to higher investment costs. With the device of Coleman, U.S. Patent 4,008,121, ***a high amount of the suspension*** must be applied on the web, because a falling curtain is needed. This means that the amount of filler required is very high. This impairs the strength of the multilayer board to an unacceptable level. If the suspension is more diluted, the pigment amount will be acceptable, but the drying costs rise clearly.

Rejection under 35 U.S.C. 103

1. Coleman

The Examiner rejects all of the remaining claims 4-5, 9, 14-16, 19-21 and 26-31 as allegedly obvious over Coleman, U.S. Patent 4,008,121. The Examiner admits that Coleman is silent regarding the specifics of the distance of the introduction of the fillers, the angle inclination of spray nozzles, types of fillers, etc. However, the Examiner maintains that the specifics of the fillers including size distributions and different hydrates are well known and that it would be obvious to use them. The Examiner says the unexpected results that Applicants argued are in fact not unexpected. Furthermore, according to the Examiner, the lack of use of chemical agents and 70% or higher filler retention is not commensurable in scope with the claims. Additionally, the Examiner maintains that the size distribution of the calcium sulphate as claimed is known (*citing*, EP 0692 456 A1).

Applicants further submit that the purpose of Coleman, U.S. Patent 4,008,121 is clearly to add any modifying material between the two layers, but in a different way, namely “by spreading pigment particles over one or more of the ply surfaces.” According to the present invention the intention is to achieve sufficient, but precise, degree of penetration: “the filler is preferably sprayed at the end of the formation of the sheet at a distance from the entrance box that guarantees penetration (in order to achieve the best coating of the inner layers)”. If the pigment does not penetrate the fiber layer, no bonding can occur between the layers and the multilayer board will delaminate.

In view of the foregoing, Applicants submit that Coleman does not teach or suggest a method of manufacturing a multi-layered pulp-product as currently claimed.

2. Nicholson

The Examiner rejects claims 1-24 and 26-42 as allegedly obvious over Nicholson, U.S. Patent No. 2,286,924. The Examiner admits that Nicholson does not teach any specific filler additives or different size distributions of the same. However, the Examiner says such filler additives are well known in the art and that it would have been obvious to use them. Moreover,

the Examiner contends that choosing the fillers size distribution and distance of the addition of the additives would have been obvious.

Applicants submit that With respect to Nicholson, U.S. Patent No. 2,286,924 teaches a distribution device that is a lip, weir or slice suitable for distribution of diluted materials. The particular embodiments exemplified by Nicholson, U.S. Patent No. 2,286,924 use a spray to spread the diluted material on a baffle plate from which the material flows down on the wire. Hence, the method of Nicholson, U.S. Patent No. 2,286,924 has the same limitations as those explained, *supra*, regarding Coleman, U.S. Patent 4,008,121. Namely, the amount of suspension must be very high, and the investment costs are higher than those for the system and methods of the present invention.

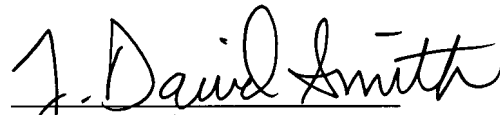
Applicants further submit that the purpose of Coleman, U.S. Patent 4,008,121 is clearly to add any modifying material between the two layers, but in a different way, namely “the modifying material applied by the distributing device will remain in the zone of union between the two layers.” According to the present invention the intention is to achieve sufficient, but precise, degree of penetration as “the filler is preferably sprayed at the end of the formation of the sheet at a distance from the entrance box that guarantees penetration (in order to achieve the best coating of the inner layers).” If the pigment does not penetrate the fiber layer, no bonding can occur between the layers and the multilayer board will delaminate.

In view of the foregoing, Applicants submit that Nicholson does not teach or suggest a method of manufacturing a multi-layered pulp-product as currently claimed.

CONCLUSION

Entry of the foregoing amendments and remarks into the record of the above identified application is respectfully requested. It is believed that all of the claims are in condition for allowance. If any issue can be resolved telephonically, the Examiner is requested to call the undersigned at the phone number provided.

Respectfully submitted,

A handwritten signature in cursive script that reads "J. David Smith". The signature is written in dark ink and is positioned above a horizontal line.

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